

**U.S. Department of Interior
Bureau of Land Management
Roseburg District, Oregon**

Environmental Assessment for the Swiftwater Field Office

FY 2003 Commercial Thinning Harvest

EA No. OR - 104 - 02 - 11

The Swiftwater Field Office proposes to do a commercial thinning harvest on approximately 1170 acres of second growth forest located in the Calapooya, Lower North Umpqua, and Elk Creek Watersheds. The Boyd Howdy Timber Sale is located in Section 7, T.24S., R.3W.; Sections 1, 11, 13, and 15, T.24S., R.4W.; and the Copeland Divide Timber Sale in Sections 19, 29, & 32, T.25S., R.3W.; W.M. This project is within the Matrix and the Riparian Reserve Land Use Allocations and is designed to help meet the Roseburg District's annual harvest commitment.

Acronyms Used:

ACS	-	Aquatic Conservation Strategy
BLM	-	Bureau of Land Management
CWD	-	Coarse Woody Debris
EA	-	Environmental Analysis
NEPA	-	National Environmental Protection Act
NFP or NWFP	-	Northwest Forest Plan
PDC	-	Project Design Criteria
RMP	-	Resources Management Plan
ROD	-	Record Of Decision (used only to refer to the NFP ROD)
S&G	-	Standards & Guidelines
S&M	-	Survey and Manage
T&E	-	Threatened or Endangered

Definitions:

Co-dominant Tree: Trees with crowns forming the general level of the crown canopy and receiving full light from above but comparatively little from the sides.

Dominant Tree: Trees with crowns extending above the general level of the crown canopy and receiving full light from above and partly from the side.

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INTRODUCTION

This Environmental Assessment (EA) has been prepared for the Swiftwater Field Office's proposed **FY 2003 COMMERCIAL THINNING Project (Boyd Howdy and Copeland Divide Timber Sales)**. An EA is a site specific analysis of potential environmental impacts that could result with the implementation of a federal action. The EA assists the Agency in project planning, ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" impacts could result from analyzed actions. "Significance" as defined by NEPA is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a "Finding of No Significant Impact" (FONSI). The FONSI is a document that briefly presents the reasons why implementation of the proposed action will not result in "significant" environmental impacts (effects) beyond those already addressed in the Roseburg District's *Proposed Resource Management Plan / Environmental Impact Statement* (PRMP/EIS, October 1994).

A Decision Document would be completed after the FONSI is signed to document the decision, however, Forest Management Regulation 43 CFR 5003.2 states that "[w]hen a decision is made to conduct an advertised timber sale; the notice of such sale shall constitute the decision document." This notice would be placed in *The News Review*, a daily newspaper of general circulation in Roseburg, Oregon and constitutes a decision document with authority to implement the proposed action.

I. PURPOSE OF AND NEED FOR ACTION

This section provides a general overview of the proposed action. Included are: the need for the action, purpose of the action, a general description and objectives of the proposal, and conformance with existing land use plans.

A. Need for Action

The BLM has a need to implement the *Roseburg District Record of Decision and Resources Management Plan* (RMP, June 1995). The RMP "responds to dual needs: the need for forest habitat and the need for forest products". "The need for forest products . . . is . . . for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies . . . on a predictable and long-term basis" (RMP, pg. 15). The BLM also needs to offer for sale "Commercial thinnings . . . after developing stands reach a combination of stem diameter and surplus volume to permit an entry that is economical" (RMP, pg. 149). Silvicultural stand exams indicate that the stands identified in this project would benefit from a thinning at this time.

The RMP employs the strategy known as "ecosystem management". "Ecosystem management emphasizes the complete ecosystem instead of individual components and looks at sustainable systems and products that people want and need. It seeks a balance between maintenance and restoration of natural systems and sustainable yield of resources" (RMP, pg. 18).

The Northwest Forest Plan (NFP) (ROD, pg. 6) divides the federal landbase into seven land use allocations (LUA) or categories. This project is primarily within the “Matrix” land use allocation. “Stands in the matrix can be managed for timber and other commodity production, and to perform an important role in maintaining biodiversity” (S&G, pg. B-6) by providing for biological legacies (snags, large woody debris and retention trees) that bridge past and future forests. The RMP further classifies the Matrix into two categories: the “General Forest Management Area” which are lands available for timber harvest and “Connectivity / Diversity Blocks” which are lands that are available for timber harvest and also provide connectivity between Late-Successional Reserves (RMP, pg. 33). This project is within both of these categories. This project is also within the “Riparian Reserves” land use allocation. The “Riparian Reserves are areas along all streams, wetlands, ponds, lakes, and unstable or potentially unstable areas where the conservation of aquatic and riparian-dependent terrestrial resources receives primary emphasis” (ROD, pg. 7). Much of the riparian areas consist of homogeneous second growth trees resulting from past harvest. Silvicultural practices are needed to reintroduce complexity and accelerate old growth characteristics within the Riparian Reserve to “. . . acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy [ACS] objectives” (RMP, pg. 25).

The need would be met by accomplishing the following objectives:

1. Timber Management and Production:

- a. “Produce a sustainable supply of timber and other forest commodities” (RMP, pg. 33).
- b. Improve stand health by reducing the excess stocking in the forest stand to increase the growth and vigor of the remaining individual trees (RMP, pg. 149).

2. Ecosystem Management:

- a. “Restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them . . .” (Aquatic Conservation Strategy) (RMP pg. 19).
- b. “Provide connectivity . . . between Late-Successional Reserves” and “Provide habitat for a variety of organisms associated with both late successional and younger forests.” (RMP pg. 33).
- c. Maintain “ecologically valuable structural components such as down logs, snags and large trees” (RMP pg. 33).
- d. Improve and/or maintain soil productivity (RMP pg. 35).
- e. “Maintain or enhance the fisheries potential of the streams . . .” (RMP pg. 40).
- f. Protect, manage and conserve all Special Status Species and Supplemental EIS Special Attention Species and their habitat (RMP pg. 41).
- g. “Improve existing culverts, bridges, and other stream crossings determined to pose a substantial risk to riparian conditions.” (RMP, pg. 73).

B. Purpose of Action

The purpose of the action described in this EA is to reduce the density of currently overstocked second-growth stands in order to maintain stand health and vigor, and promote future desirable stand characteristics. This would be met by offering the **Boyd Howdy and Copeland Divide** Timber Sales for auction in fiscal year 2004 or later. This proposal would provide a sustainable supply of timber to the local economy and help meet the Roseburg District's annual harvest commitment or probable sale quantity. It is also the purpose of this project to accelerate the development of mature forest characteristics (large trees, down woody debris and snags) within the Riparian Reserve areas through density management.

C. Description of the Proposal

The Swiftwater Field Office of the Bureau of Land Management (BLM) proposes to harvest timber in the Calapooya, Lower North Umpqua, and Elk Creek Watersheds. The Boyd Howdy Timber Sale is located in Section 7, T.24S., R.3W.; Sections 1,11,13, and 15, T.24S., R.4W.; and the Copeland Divide Timber Sale in Sections 19,29, & 32, T.25S., R.3W.; W.M. (see maps, Appendix A through C). Approximately 1250 acres are analyzed for potential thinning activities and density management within the Riparian Reserve. New road construction, renovation and improvement of existing roads and approaches to two heliponds would also occur. Section II (pg. 4) of this EA provides a more detailed description of the Proposed Action Alternative.

D. Conformance with Existing Land Use Plans

The Proposed Action and all alternatives were developed to be in conformance with the *Final - Roseburg District Proposed Resource Management Plan / Environmental Impact Statement* (PRMP/EIS) dated October 1994 and its associated *Roseburg District Record of Decision and Resources Management Plan* (RMP) dated June 2, 1995. The RMP was written to be consistent with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* (FSEIS); dated Feb. 1994 and its associated *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (ROD) and *Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl* (S&G's) dated April 13, 1994; generally referred to as the "Northwest Forest Plan" (NFP) and the *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M ROD). All treatment of noxious weeds would be in compliance with the *Roseburg District Noxious Weed EA*.

II. ALTERNATIVES INCLUDING THE PROPOSED ALTERNATIVE

This section describes the No Action and Proposed Action alternatives, and any alternatives considered but eliminated from detailed analysis. These alternatives represent a range of reasonable potential actions that would meet the Purpose and Need. This section also discusses specific design features that would be implemented under the proposed action alternative.

A. The No Action Alternative (Alternative A)

The No Action Alternative is required by NEPA and provides a baseline for the comparison of the alternatives. This alternative represents the existing condition. If this alternative were selected there would be no harvesting of timber within the bounds of the project area. Harvest would, however, occur at another location within Matrix lands in order to meet harvest commitments identified in the RMP (pg. 7 and 60). Selection of this alternative would not constitute a decision to reallocate these lands to non-commodity uses. Future harvesting in this area would not be precluded and could be analyzed under a subsequent EA. There would be no entry into the Riparian Reserve for the purpose of enhancing conditions of late-successional forest ecosystems and applying silvicultural practices to meet ACS objectives at this time. Only sporadic as needed maintenance would be performed; this mainly for the sole purpose of keeping the roads open to traffic. There would be no decommissioning or improvement of roads to reduce road related impacts.

B. The Proposed Action Alternative (Alternative B)

Implementation of the Proposed Action Alternative would result in the following activities: timber harvest, permanent and temporary road construction, road renovation and improvement, subsoiling of previously compacted skid trails, road decommissioning, habitat restoration, and fuel reduction (burning of landing piles). These activities are summarized by sale in Table 1 below.

TABLE 1. Proposed Action Summary (All figures are approximate)

	Boyd Howdy	Copeland Divide	Total
Timber Harvest	730 acres of harvest on 13 units	440 acres of harvest on four units	1170 acres of harvest on 17 units
Logging	Cable - 400 ac. Helicopter - 240 ac. Ground-based - 90 ac.	Cable - 270 ac. Helicopter - 50 ac. Ground-based - 120 ac.	Cable - 670 ac. Helicopter - 290 ac. Ground based - 210 ac.
Road Construction	Permanent – Two spurs for 0.7 mi. Temporary – 12 spurs for 1.4 mi.	Permanent – one spur for 0.5 mi. Temporary – 10 spurs for 0.3 miles.	Permanent - 1.2 mi. Temporary - 1.7 mi. Total - 2.9 mi.
Road Renovation and Improvement	Renovation - 2.0 mi. Improvement – 12.2 mi.	Renovation - 15.9 mi. Improvement - 0.3 mi.	Renovation - 17.9 mi. Improvement - 12.5 mi.
Road Decommissioning	Decomm. - 1.6 mi. Full Decomm. - 1.4 mi.	Decomm. - 0.4 mi. Full Decomm. - 0.1 mi.	Decomm. - 2.0 mi. Full Decomm. - 1.5 mi.
Habitat Restoration	RR Treatment ¹ - 175 ac. RMZ Treatment - 35 ac.	RR Treatment ¹ - 85 ac. RMZ Treatment - 30 ac.	RR Treatment ¹ - 260 ac. RMZ Treatment - 65 ac.

¹ Figure is exclusive of RMZ acres

Timber harvest – Harvest would help meet the Roseburg District's annual harvest commitment of 7.0 MMCF (45 MMBF). Practices would consist of a combination of commercial thinning and density management harvest and road right-of-way clearcut. **Commercial thinning** is designed to reduce the density of the forest stand in order to maintain stand vigor and increase wood quality, to promote increased growth on the remaining trees and recover wood fiber that would ordinarily be lost through natural mortality (RMP, pg. 149). **Density management harvest** (in the Riparian Reserves) is designed to accelerate the attainment of mature and old growth forest characteristics by encouraging the development of larger trees more quickly through reducing the stocking of the forest stand around selected trees in order to accelerate the growth of the remaining trees. Other trees would be left quite dense to promote mortality for stand diversity (RMP, pg. 103). The excess volume would be yarded and removed. Approximately 14 acres of **road right-of-way clearcut** are included with this action. A small amount of additional timber could potentially be included as a modification to this project. These additions would be limited to removal of individual trees needed to facilitate the Proposed Action (ex. guyline and tailhold trees, cable yarding corridor trees, trees around helicopter landings, or trees within the road construction prism). Historically this addition has been less than 10% of the estimated sale quantity. **Firewood cutting and salvaging** of logging debris (slash) could occur in landing cull decks and near roads after completion of logging. An undetermined number of trees would need to be felled prior to the signing of a Decision Document for sampling purposes. This is considered a separate action and was analyzed under the *3-P Fall, Buck and Scale Sampling* EA (EA# OR-100-00-06). The Proposed Action would require a mix of skyline cable logging (57%), helicopter logging (25%) and ground based (tractor, shovel, or harvester/forwarder) logging (18%). The Authorized Officer (Sale Contract Administrator) may determine that additional isolated minor ground based logging would be necessary (ex. removal of isolated portions of units, shovel logging from existing roads, etc.). Up to twenty acres were assumed in the analysis. Helicopter landing locations are expected to be a one-half to one acre in size. Trees that are determined to be a hazard to flight operations could be cut under approval of the Authorized Officer.

Roads – Activities consists of **road construction** of permanent (roads maintained for long-term use) and temporary roads (roads built for single season use then blocked but can be reopened for future use). **Rock quarrying** operations would occur in 24-4-1 (Harness Mountain Pit).

Road renovation (restoring the road back to its original design) would occur on both BLM and private road. BLM road would also have **road improvement** (improving the road beyond its original design). These activities would consist of installing or performing maintenance on drainage structures (culverts and ditches), reshaping (grading) the road surface, surfacing with crushed rock, and brushing road shoulders. **Road decommissioning** - ". . . road segment . . . closed to vehicles on a long-term basis, but may be used again in the future." (Western Oregon Transportation Management Plan [TMO], pg. 15) and **full decommissioning** - "roads determined through an interdisciplinary process to have no future need . . ." (TMO, pg. 18) would occur on existing BLM roads (see pg. 7, para. 1d). The Mt. Scott and Harness Mountain heliponds would be maintained to improve access for fire fighting equipment.

Habitat restoration would occur within the Riparian Reserves and Unit 13B (see page 7, para. 1d). This would include girdling and topping trees for snag creation, tree felling to provide a source of interim coarse woody debris, removal of an old failing log culvert, and subsoiling of an old skid trail. **Subsoiling** would occur on selected old existing skid trails used under this action as well as any new trails created that meet the RMP plan maintenance criteria for subsoiling. The **burning of landing cull decks and slash piles** could occur as a means of reducing fire hazard.

C. Project Design Features and Management Practices as part of the Action Alternative

This section describes measures designed to avoid, minimize or rectify impacts on resources that would be incorporated with the implementation of the action alternative. Project Design Criteria (PDC's) are site specific measures, restrictions, requirements or physical structures included in the design of a project in order to reduce adverse environmental impacts. Additionally, the RMP (Appendix D, pg. 129) lists "Best Management Practices" (BMP's) and the ROD lists "Standards and Guidelines" (S&G's). BMP's are measures designed to protect water quality and soil productivity. S&G's are "... the rules and limits governing actions, and the principles specifying the environmental conditions or levels to be achieved and maintained" (S&G, pg. A-6).

1. To meet the objectives of the "Aquatic Conservation Strategy (ACS)" (RMP, pg. 19):

a. **Riparian Reserves (Component #1)** were established. Riparian Reserves consist of (1) lands incorporating permanently flowing (perennial) and seasonally flowing (intermittent) streams, (2) the extent of unstable and potentially unstable areas that may directly impact streams, and (3) wetlands. The RMP (pg. 24) specifies Riparian Reserve widths equal to the height of two site potential trees on each side of fish bearing streams and one site potential tree on each side of perennial or intermittent non-fish bearing streams and wetlands greater than an acre. Data has been analyzed from District inventory plots and the height of a site potential tree for the Calapooya Creek watershed has been determined to be the equivalent of 180 ft. Riparian Reserve boundaries therefore would be approximately 180 ft. slope distance from the edge of non-fish bearing streams and 360 ft. from fish bearing streams in the project area (Roseburg District Memo, Jan. 18, 1995).

There are four fish bearing streams in the project area. Proposed Units 7A, 11C, 11D, 11E, 13A, 13C and 15A (Boyd Howdy) are adjacent to these streams. Wetlands and nonfish-bearing streams were found within or adjacent to proposed units 1A, 1D, 7A, 7B, 11A, 11C, 13A, 13C, 15A and 15B (Boyd Howdy); and 19A, 29A and 29B (Copeland Divide).

1). Streambank stability and water temperature would be maintained by establishing a Riparian Management Zone (RMZ) long all streams. This zone consists of a streamside strip at least 40 ft. wide along non-fish bearing streams and 100 ft. wide along fish bearing streams. These strips would also incorporate areas of instability to buffer effects from logging. No density management would occur within the RMZ other than 12 trees per acre would be girdled or felled and two trees per acre of this number would be topped. Approximately 65 acres are contained within the RMZ.

2). Density management would be applied within the Riparian Reserves of Units 1A, 1D, 7A, 7B, 11A, 11C, 11E, 13A, 13C, 13D, 15A, and 15B (Boyd Howdy); and 19A, 19B, 29A and 29B (Copeland Divide) "to control stocking . . . and acquire vegetation characteristics needed to attain Aquatic Conservation Strategy objectives" (RMP pg. 25). The objective is to develop late seral forest structure and enhance existing diversity by accelerating tree growth to promote larger trees and canopies, and provide a future source of large woody debris for stream structure. Approximately 260 acres of the Riparian Reserve outside the RMZ would be thinned for this purpose. This would result in a change from approximately 250 stems per acre before thinning to 30 – 60 stems per acre after thinning and RMZ treatment except in areas of potential instability (pg. 9) where heavier retention would be prescribed. The girdling, felling and topping described above would also occur in the portion of the Riparian Reserves outside the RMZ.

3). Riparian habitat would be protected by maintaining a Riparian Management Zone. Harvest would not occur within this zone, however treatment to restore riparian habitat (felling trees to provide for interim down woody debris, and girdling and topping for snag creation) would occur. Habitat would be protected from logging damage by directionally felling trees that are within 100' of streams away from the streams and yarding logs away from or parallel to the streams (i.e. logs would not be yarded across streams unless fully suspended through the RMZ). Approximately 150 ft. of road building would occur within the Riparian Reserve. This road is near a man-made feature (helipond >1 ac.) and would not adversely alter riparian habitat (RMP, pg. 25).

4). The riparian vegetation of wetlands would be protected by not permitting logging through the wetland (<1 ac.) or buffering and excluding from the project area (>1 ac.). Trees designated for harvest, within 100' of the wetland, would be felled and yarded away from the wetland to protect this habitat.

5). Four acres of unstable ground were determined to be unsuitable for harvest (Timber Production Capability Classification of FGNW and FPNW; i.e., unsuitable for timber production due to unstable slope) and therefore excluded from harvest. Most of these areas are within the Riparian Reserves and included in the no-cut RMZ (see pg. 13).

b. **Key Watersheds (ACS Component #2)** were established “as refugia . . . for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species [RMP, pg. 20].” This project is not in a Key Watershed.

c. **Watershed Analyses (ACS Component #3)** for the Calapooya, Lower North Umpqua, and Elk Creek, Watersheds were used in this analysis and is available for public review at the Roseburg District office.

d. **Watershed Restoration (ACS Component #4)** would be accomplished through the treatment of Riparian Reserves as described in paragraph 1a above to “restore . . . structural diversity of plant communities in riparian zones” (RMP, pg. 20); and full decommissioning of roads to reduce watershed road mileage. Approximately 0.45 miles (Road # 24-4-13.0B2 and an unnumbered spur) would have active full decommissioning plus 1.04 miles (Road # 25-3-29.1, 24-4-14.2, and unnumbered road) would be blocked and allowed to naturally decommission for a total of 1.5 miles. Road # 24-4-1.1A would be improved through surfacing of natural surface that would reduce erosion for a total of 0.1 miles. Approximately 48 acres would be treated for watershed enhancement activities (e.g., density manipulation for wildlife purposes, log culvert removal, and streambank stabilization).

2. To minimize soil erosion as a source of sedimentation to streams and to minimize soil productivity loss from soil compaction, loss of slope stability or loss of soil duff layer:

a. **Measures to limit soil erosion and sedimentation from roads** would consist of: (1) Performing maintenance on existing roads (Road No. 23-4-36.0; 24-3-7.0; 24-4-1.1, 1.2, 1.3, 7.0, 11.0, 11.1, 11.2, 11.3, 11.4, 13.0, 13.1, 14.1, 14.4, 15.0, 15.2, 22.0, 23.0, 23.1 (Boyd Howdy); and 25-3-19.0, 19.1, 20.1, 29.0, 29.1, 29.2, 29.3, 29.4, 29.5, 29.7, 29.8; 25-4-2.0, 12.1 and 24.1 (Copeland Divide) [see Appendix B]) to fix drainage and erosion problems. This would consist of performing maintenance on existing culverts, installing additional culverts, stabilizing at-risk fills and cuts, and replenishing road surface with crushed rock where deficient. (2) Accomplishing in-stream work (i.e. culvert replacement and fill removal)

during periods of low flow (between July 1 and September 15). (3) Locating new spur roads outside of Riparian Reserves (see pg. 7, para. a(3)). (4) Restricting road renovation and log hauling on unsurfaced roads to the dry season (normally May 15 to Oct. 15). If unacceptable resource damage could occur, operations during the dry season could be suspended during periods of heavy precipitation. This season could be adjusted if unseasonable conditions occur (e.g. an extended dry season beyond October 15 or wet season beyond May 15). (5) Prior to any wet season haul on surfaced roads, the stream crossings along the haul route would be evaluated for the need for turbidity reducing measures (ex., placement of weed free straw bales and/or silt fences). If needed, these structures would be put in place prior to haul. (6) Not over-wintering bare erodible spur roads. This would be met by building, using and decommissioning roads, i.e. installing necessary drainage features, blocking and seeding and mulching bare cut and fill surfaces with native species, or a sterile hybrid mix if native seed is unavailable, at the end of the operating season. (7) Decommissioning all temporary spur construction when logging is completed, i.e. the roadbed would be water barred, cut slopes and fills seeded with native species, or a sterile hybrid mix if native seed is unavailable, and access blocked. These BMP's (RMP, pg. 136-7) are designed to minimize sedimentation and protect water quality. (8) Decommissioning existing roads # 24-4-1.1, 11.0, 11.2, 13.0, 15.0 (Boyd Howdy); and 25-3-29.0, and 29.12 (Copeland Divide) by pulling any culverts, waterbarring the road surface and blocking access. (9) Removal of rock would occur only within the existing rock quarry.

b. **Measures to limit soil erosion and sedimentation from logging** would consist of: (1) requiring skyline yarding where cable logging is specified. This method limits ground disturbance by requiring at least partial suspension during yarding (i.e., the use of a logging system that "suspends" the front end of the log during in-haul to the landing, thereby lessening the "plowing" action that disturbs the soil). Intermediate supports would be used where necessary. In some limited, isolated areas partial suspension may not be physically possible due to terrain or lateral yarding. Excessive soil furrowing would be hand waterbarred. (2) Dry season logging would be required on all or portions of Units 1A, 1D, 7A, 7B, 11A, 11C, 11D, 13A, 15A, 15B (Boyd Howdy); and 19A, 19B, 29A and 29B (Copeland Divide). Ground based logging would be limited to the dry season as described above. NOTE: Helicopter logging would be required on all or portions of units 7A, 7B, 11A, 11D, 11E, 13A, 13C, 15A (Boyd Howdy); and 19A (Copeland Divide) where partial suspension would not be possible or access to the unit would require excessive new road construction. Aerial logging lifts logs vertically off the ground with minimal ground disturbance.

c. **Measures to limit soil compaction** (RMP, pg. 37) would consist of: (1) limiting ground-based logging and subsoiling (all or portions of Units 1A, 1D, 11A, 11C, 13A, 15A and 15B (Boyd Howdy); and 19A, 19B, 29A, and 29B (Copeland Divide) to the dry season (May 15 to Oct. 15) when soils are least compactable; however, this season could be adjusted if unseasonable conditions occur (e.g., an extended dry season or wet season). Also, operations would be suspended during periods of heavy precipitation if resource damage would occur. (2) Limiting machines in size and track width in size and track width to reduce compaction and trail width. (3) Using old trails to the greatest extent practical and limiting new trails to slopes less than 35%. Ground based tractor activities would be confined to designated skid trails as identified in an approved logging plan. Tractor skidtrails would be spaced at an average spacing of 150 feet apart where topography allows. This would result in about 7% of the ground surface in trails. If harvester/forwarder is used, the harvester would be required to delimb trees in front of the machine tracks or tires in order to reduce compaction.

The forwarder would operate on the branch and limb covered areas traversed by the harvester. (4) Evaluating the need for amelioration by the Soil Scientist after completion of ground-based operations in accordance with RMP criteria. All main trails would be ameliorated after completion of current entry or would be documented with a plan for deferred amelioration at final harvest. Amelioration would only be deferred if unacceptable damage to residual trees would occur. Secondary trails (any trail that has less than 50 percent exposed mineral soil) would be handled in the same manner as main trails if field evaluation shows that compaction is extensive. Amelioration would include subsoiling and returning organic debris to the subsoiled surface. Subsoiling, a practice that shatters soil compaction thereby reducing the effects to soil productivity and improving water infiltration, has been the main type of amelioration. Subsoiling of trails for this entry would be done with a winged subsoiler mounted to the arm of a small excavator. The excavator would pull organic debris back over the trails. Existing accessible skid trails and haul roads not considered as part of the current transportation would also be subsoiled when evaluation indicates excessive compaction and where practical (e.g., subsoiling saturated or very rocky soils or skid trails with advanced reproduction would not benefit soil productivity and therefore would not be practical). Existing skid trails would be used wherever possible. (5) Subsoiling of decommissioned roads, temporary spur roads and existing skidtrails from previous entries (when a post-operation evaluation indicates excessive compaction and where practical) with a winged subsoiler (or equivalent) provided that subsoiling would not contribute to additional sedimentation to streams.

d. **Measures to protect slope stability** would consist of: (1) Removing areas that exhibit potential slope instability (can become unstable with changing site conditions) from harvest consideration entirely or limiting the intensity of thinning by carrying higher levels of retention within those areas that could ultimately impact aquatic values such as fisheries (see Appendix D). (2) Locating new roads in stable locations and with proper drainage structures, and (3) Dry season yarding (where required) with at least one-end suspension.

3. To provide wildlife habitat components:

a. Future nesting and roosting habitat for cavity dwellers would be provided by reserving existing hard or soft snags at least 20" in diameter and 15 ft. in height (PRMP/EIS, Appendices 226) where possible. Any snag deemed as hazardous to worker safety could be felled at the discretion of the operator and the Sales Administrator. Such trees would be reserved and left in place as coarse woody debris (CWD). Past experience has been that less than 5% of snags need to be felled for this reason. Remnant mature or old-growth trees remaining from the previous stand would be reserved where possible.

b. Most existing CWD (at least 16" in diameter and 16 ft. in length) would be reserved (RMP, pg. 38). This has been created by blowdown trees and logs remaining from previous logging.

4. To protect air quality:

Any burning of landing piles would have an approved "Burn Plan" and be conducted under the requirements of the Oregon Smoke Management Plan and done in a manner consistent with the requirements of the Clean Air Act.

5. To protect and enhance stand diversity:

a. Mature and old growth (RMP, pg. 112) remnant trees in the thinning units would be retained to the greatest extent possible as well as occasional defective (diseased) and

deformed trees (trees with broken or multiple tops, and trees with ramicorn branches (large branch clusters)) that could provide future snags and nesting habitat. Approximately 0.06 old growth remnant trees per acre (Boyd Howdy) and 0.04 old growth remnant trees per acre (Copeland Divide) were found in the proposed units.

b. Snags and CWD would be reserved as described in paragraph three above. Snags would be protected from logging damage by clumping trees around them and directionally falling trees away from the snags. Approximately 0.01 snags per acre (Boyd Howdy) and 0.04 snags per acre (Copeland Divide) were found in the proposed units.

6. To prevent and report accidental spills of petroleum products or other hazardous material and provide for work site cleanup:

During operations described in this proposal, the operator would comply with all applicable State and Federal laws and regulations concerning the storage, use and disposal of industrial chemicals and other hazardous materials. All equipment planned for instream work (i.e., culvert removal on Rd # 24-4-11.2, 24-4-13.0, and 24-4-7.0) would be inspected beforehand for leaks. Accidental spills or discovery of the dumping of any hazardous materials would be reported to the Sale Administrator and the procedures outlined in the "Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan" would be followed. Hazardous materials (particularly petroleum products) would be stored in durable containers and located so that any accidental spill would be contained and would not drain into watercourses. All landing trash and logging and construction materials would be removed from the project area.

7. To prevent and/or control reduce the spread of noxious weeds:

Stipulations would be incorporated into the logging contract to prevent and/or control the spread of noxious weeds. This would include the cleaning of logging equipment prior to entry on BLM lands (BLM Manual 9015 - Integrated Weed Management) as well as roadside brushing prior to the start of management activities in the proposed project area.

8. To protect the residual stand and promote stand health:

a. As much as possible, trees that would most likely survive logging and overall improve the stand condition and health would be selected for retention. The stand would be thinned from below (i.e. removal of the smallest diameter trees first) which would remove suppressed trees and smaller trees that would result in less stand damage during felling.

b. Felling and yarding would be done in a manner to protect the residual stand. No felling and yarding in the cable areas would be permitted from April 15 through July 15 when the sap is up in the trees and damage due to bark slippage could occur. This date could be adjusted based on local conditions (e.g. earlier or later than normal loose bark period).

c. Yarding systems would be designed to match yarder and cable size to the size of the timber in order to minimize damage from an overly large yarding system. Corridors for yarding would be pre-designated and approved by the Sale Administrator.

9. To protect Special Status and SEIS Special Attention Plants and Animals:

a. If, during implementation of the proposed action, any Special Status (Threatened or Endangered, proposed Threatened or Endangered, Candidate, State listed, Bureau Sensitive, Bureau Assessment, or Special Provision) species are found that were not discovered during pre-disturbance surveys; operations would be suspended and appropriate protective measures would be determined before operations would be resumed.

b. Special Attention (Survey and Manage) plant and animal sites would be protected where required, according to established management recommendations (RMP, pg. 42).

c. If surveys determine that a peregrine falcon is nesting on Scott Mountain, seasonal restrictions would be applied within 1.0 mile of the nest site from February 1st through August 15th or until the young have fledged.

10. To protect cultural resources:

Stipulations would be placed in the contract to halt operations and evaluate the appropriate type of mitigation needed to provide adequate protection; if any objects of cultural value (e.g. historical or prehistorical ruins, graves, fossils or artifacts) are found during the implementation of the proposed action that were not found during project evaluation.

D. Alternatives Considered but Eliminated

There were no other alternatives considered during the formulation of this project.

III. AFFECTED ENVIRONMENT

This section describes the existing environment and forms a baseline for comparison of the effects created by the alternatives under consideration. This section does not attempt to describe in detail every resource within the proposed project area that could be impacted but only those resources which could be substantially impacted. This project lies within the Oregon Western Cascades Physiographic Province. The FSEIS describes the affected environment for this province on page 3&4-19. The Roseburg District Proposed Resource Management Plan/Environmental Impact Statement (PRMP/EIS, pp. 3-3 through 3-71) provides a detailed description of BLM administered lands on the Roseburg District. This project is predominantly in the Calapooya and Lower North Umpqua Watersheds. A further description can also be found in these Watershed Analyses. Appendix F (Analysis File) contains data and additional supporting information used by the interdisciplinary team (IDT) to describe the affected environment.

A. General Setting

Stand Description - The predominant conifer species is Douglas-fir. Other conifer species in association include incense-cedar, western hemlock, western red cedar, and grand fir. Hardwoods including madrone, chinkapin, big leaf maple and red alder are also found in these stands. Salal, Oregon grape and sword fern are common on the forest floor. The plant association best describing these areas is a western hemlock or white fir over salal and Oregon grape. Coarse woody debris averages about 2160 cubic feet wood volume/acre on Boyd Howdy and 3950 cubic feet wood volume/acre on Copeland Divide.

Site Description - This project occurs within the Calapooya Creek, Lower North Umpqua, and Elk Creek fifth-field watersheds. Current landscape patterns include natural stands that are the result of fire, managed stands established following timber harvest, and non-forested agricultural and pasture lands.

B. Affected Resources

The affected area was surveyed for the resources listed below according to established protocols:

Botany - No Special Status Plants or Survey and Manage plants were found. Some localized infestations of scotch broom, a noxious weed, were found in the project area.

Cultural Resources - No cultural resources were found in the project area.

Soils and Geology – This project is located in the transition zone between the Coast Range to the west and the Cascades to the east. Soils were formed primarily over sedimentary rocks of sandstones and siltstones and to a lesser degree over volcanic rock of tuffs and andesitic/basaltic material. The interface of this complex geology and the variable weathering of rock can result in highly variable slope stability, even within short distances and on moderate (30 to 60 percent) slopes. Much of the terrain has a stair-stepping appearance of steep to very steep slopes (60 to greater than 90 percent) alternating with gentle to moderate slopes. This terrain is in part a result of ancient slump/earthflow episodes.

The more gentle slopes generally have very deep soils that often have water tables at or near the surface, particularly in the low depressions (in or adjacent to Units 1A, 1B, 13A, and 29A particularly). Many of the areas with a high water table are perennially wet. Others require an extended period of time to dry. Over 90 percent of the gentle slopes were ground-based harvested resulting in a dense pattern of skids trails, with substantial soil displacement, erosion, exposure of subsoil and compaction. Much of the compaction remains today. A number of trails crossed streams and followed intermittent and ephemeral stream bottoms whose channels were filled with earth. High sedimentation resulted as channels reestablished themselves. Roughly 70 percent of the steeper ground was also ground-based harvested. Ground-based harvesting on the steeper ground created a less dense pattern of trails but resulted in much greater displacements of soil through trail excavation. Currently skid trails and old associated haul roads are stable to erosion and sedimentation except for widely scattered exceptions. The most notable exception (Unit 7A) is a trail oriented directly up a 50 percent slope that has eroded into a deep gully that is still actively headcutting and putting sediment into a fish-bearing stream.

Landslides have occurred in some units since clear cut harvest, even on slopes as gentle as 40 percent. The greatest concentration of slope instability has been where water concentrates (ex., seeps and swale heads) in deep to very deep soils over crumbly sandstones and siltstones of very weak strengths. Slumps and earth flows whose shear zones cut through this weak bedrock have been fairly common in these locations, particularly in or adjacent to Boyd Howdy units 11A, 13A and to a lesser degree Units 13C, 13B; and Copeland Divide units 19A and 29A. Most occurrences were in clearcuts younger than seven years and in road fills. A few have occurred recently in the mid-seral stands. Their areas ranged from 0.03 to 0.35 acres sizes with two larger exceptions. The biggest event was a harvest-related earth flow-debris flow combination in Unit 11A that was two acres in size. Backwasting of road cuts have been common in this deeper soil-weak bedrock condition. The northern part of Unit 19A has prominent slump-earth flow topography but evidence is lacking that any activity occurred since it was clearcut. On slopes greater than 65 percent where the bedrock is harder and more competent there have been some small, shallow debris avalanches. The greatest concentration of these slopes is in Unit 11D and the central part of Unit 19A. About 200 acres of the affected area (17%) has potentially unstable slopes (can become unstable with changing site conditions) and about four acres of the affected area have unstable slopes (actively failing). 12

For the purpose of this analysis, potentially unstable slopes are those considered to be FPR and FGR in the Timber Production Capability Classification (TPCC). FPR soils are fragile but suitable due to slump-earth flow potentials and FGR soils are fragile due to the potential for landslides on the steeper slopes (primarily debris avalanches and debris flows). Both classifications are considered suitable for timber harvest with mitigation. Nearly all the area classified as FPR and FGR are in Units 7A, 7B, 11A, 11D, 13A, 13C, 15A (Boyd Howdy); and 19A and 29A (Copeland Divide). About four acres in units 11A and 29A are actively failing (unstable) slopes and are classified FPNW and FGNW (can not be satisfactorily mitigated for slope instability and therefore unsuitable for timber production). These unstable slopes are primarily adjacent to streams. Their locations and descriptions are given in Appendix D.

Hydrology - The proposed projects are located within the Calapooya Creek, Lower North Umpqua, and Elk Creek fifth-field watersheds. The Boyd Howdy project is within the Elkhead sixth-field watershed of Elk Creek, and the Evans Butte and Brown Mountain sixth-field watersheds of Calapooya Creek. The Copeland Divide project is located within the Nonpariel sixth-field watershed of Calapooya Creek and the Bradley Creek sixth-field watershed of Lower North Umpqua. Beneficial Uses of Water consist primarily of domestic water supply, irrigation and livestock watering, recreation, resident fish and aquatic life, and salmonid spawning and rearing. The Oregon Department of Environmental Quality (DEQ) has identified Calapooya Creek as water quality limited for temperature, fecal coliform, dissolved oxygen, and pH; and the North Umpqua River as water quality limited for temperature (Oregon DEQ, 2003). Annual precipitation amounts of 52 to over 82 inches occur primarily between October and March. Elevations across the project area range from 800 to 3200 feet. Precipitation occurs primarily as rain at lower elevations (< 2,000 feet). The Transient Snow Zone (TSZ) is defined as areas between 2,000 to 5,000 foot elevation that may alternately receive snow or rain. Portions of the proposed timber sale (Units 1A, 1D, 7B [part], 19A [part], and 29B) are located within the TSZ (see pg. 19).

Fisheries - There are four fish-bearing streams in the proposed Boyd Howdy project area: Oldham Creek, Gossett Creek, Mill Creek and Boyd Creek (Evans Butte Sixth Field Watershed). There are three fish-bearing streams down stream of the Copeland Divide project area: Gassy Creek, Slide Creek and French Creek. Oregon Coast Coho (*Oncorhynchus kisutch*), Coastal Cutthroat trout (*O. clarki*), Oregon Coast Steelhead trout (*O. mykiss*) and Pacific Lamprey (*Lampetra tridentata*) are present in the watersheds (Calapooya Watershed Analysis-1999, pg. 7-1; and Lower North Umpqua Watershed Assessment and Action Plan-2002 (DRAFT, pg. 95). Of the three watersheds, the Umpqua Chub (*Oregonichthys kalawatseti*) is present only in the Calapooya Watershed (Calapooya Watershed Analysis, pg. 7-1). The Oregon Coast Coho has been designated by the Endangered Species Act as a threatened species (Federal Register, Vol. 63, No. 153, August 10, 1998, p. 42587). Further detail on listed species status is contained in Table 5, Appendix F.

The Oregon Department of Fish and Wildlife (ODFW, 1994) has conducted aquatic habitat inventory surveys for the Calapooya, Lower North Umpqua, and Elk Creek fifth-field watersheds. Data is available for Boyd Howdy Timber Sale: Oldham Creek (Reach 5 & 6), Boyd Creek (Reach 1 & 2), Gossett Creek (Reach 1, 2 & 3), and Mill Creek (Reach 2) and Copeland Divide Timber Sale: French Creek (Reach 4), Gassy Creek (Reach 5), and Slide Creek (Reach 3) and was used in this analysis. These surveys generally show that streams within the watershed lack large wood, have a high percentage of fine sediment within the stream channels, and substrate dominated by bedrock.

Wildlife - Federally Threatened and Endangered (T&E) species known to occur in the Roseburg District include the northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), bald eagle (*Haliaeetus leucocephalus*), Columbian white-tailed deer (*Odocoileus virginianus*), and Fender's blue butterfly (*Icaricia icarioides fenderi*). There are four known northern spotted owl (NSO) master sites (Gossett Creek, Mill Creek, Field Creek, and French Creek) within 1.2 miles (home range) of the project area. There are no known NSO sites within 0.25 miles (disturbance zone) of the project area. The Gossett Creek, Field Creek, and French Creek NSO sites are protected with Residual Habitat Areas (a known owl activity center as of January 1, 1994). This project contains 783 acres within Critical Habitat Unit CHU OR-24 for the NSO. Critical Habitat is defined as a specific geographical area specified by the US Fish and Wildlife Service (FWS) in Recovery Plans as containing habitat essential for the conservation of a Threatened and Endangered species. This project occurs more than 50 miles from the Coast and therefore is not considered to contain suitable marbled murrelet habitat. There are no known bald eagle nests within 0.25 miles of any of the project area. An eagle of undetermined species was detected near proposed Boyd Howdy Units 13A and 13B in 2002 and subsequent surveys in 2003 determined that there were no nesting eagles within the project area. No other T&E species occur in the project area.

Survey and Manage Species – Suitable habitat (1,232 acres) for the red tree vole (*Arborimus longicaudus*) is contained within the proposed sale units. Surveys for red tree voles were not required since the project area falls within that portion of the species range specified as Category D (pre-disturbance surveys not practical) in the 2001 Survey & Manage Annual Species Review (IM-OR-2002-064). No red tree vole sites are documented within the project area. Equivalent-effort surveys for the Crater Lake Tightcoil (*Pristiloma arcticum crateris*) were completed March 10, 2003 in suitable habitat within the project area. No Crater Lake tightcoil sites were detected but three Oregon megomphix (*Megomphix hemphilli*; a category F species in Roseburg District) sites were discovered.

Special Status Species – A potential northern goshawk (*Accipiter gentilis*) (Bureau Sensitive) was reported in T. 24 S., R. 04W., Section 13 in 2002. Additional surveys were completed in 2003, to determine if a northern goshawk nest site was present in the project area. Surveys determined that the northern goshawk was not nesting within the stand in 2003. Two sharp-shinned hawk (*Accipiter striatus*) (Special Provision) nest trees were identified within proposed Copeland Divide unit 29B (T. 25 S., R. 03 W., Sections 29 and 32) and the site was documented as occupied and active in 2002. Additional surveys were completed 2003 to determine the nesting status of the known sharp-shinned hawk nests within the stand. Surveys determined that the sharp-shinned hawk was not nesting within the stand. There is a documented maternal roosting colony for the Townsend's big-eared bat (*Corynorhinus townsendii*) (Bureau Sensitive) within the caves on Scott Mountain. The bats may forage over the Mt. Scott heli-pond near Copeland Divide Unit 29B. There is suitable nesting habitat for the peregrine falcon (*Falco peregrinus anatum*) (Bureau Sensitive) on the cliff face of Scott Mountain. Partial surveys (not to protocol) performed in 2003 indicated that peregrine falcon nesting was not likely in 2003. To determine if there are nesting peregrine falcons on Scott Mountain, surveys would be completed from April-July of 2004 and 2005. The Mt. Scott heli-pond (T. 25 S., R. 3 W., Section 29) and the Fern Patch pump chance (T. 24 S., R. 4 W., Section 1) are suitable habitat for the western pond turtle (*Clemmys marmorata*) (Bureau Sensitive). The proposed sale units are suitable overwintering habitat. To date no pond turtles have been observed in the project area. There is potential habitat for the fisher (*Martes pennanti*) (Bureau Sensitive) within the project area although the most recent sighting in the Roseburg District was in 1975.

For more information regarding Threatened and Endangered Species, Survey and Manage Species, or other Special Status Species, 14refer to Appendix F, Tables 1-4.

IV. ENVIRONMENTAL CONSEQUENCES

This section provides the analytical basis for the comparisons of the alternatives. The reasonably foreseeable environmental consequences (impacts, effects) to the human environment that each alternative would have on selected resources are described. Impacts can be beneficial or detrimental. This section is organized by the alternatives and the effects on any key issue identified in Appendix D, as well as the selected resources. Analysis considers the direct impacts (effects caused by the action and occurring at the same place and time), indirect impacts (effects caused by the action but occurring later in time and farther removed in distance but are reasonably foreseeable) and cumulative impacts (effects of the action when added to other past, present and reasonably foreseeable future actions).

The Roseburg RMP/EIS analyzes the environmental consequences in a broader context. This EA does not attempt to reanalyze impacts that have already been analyzed in these documents but rather to identify the particular site specific impacts that could reasonably occur. Environmental effects to the “Critical Elements of the Human Environment” are analyzed in Appendix D and E.

When encountering a gap in information, the question implicit in the Council on Environmental Quality regulations on incomplete and unavailable information was posed: Is this information “essential to a reasoned choice among the alternatives”? (40 CFR 1502.22(a)). While additional information would often add precision to estimates or better specify a relationship, the basic data and central relationships are sufficiently well established that any new information would not likely reverse or nullify understood relationships. Although new information would be welcome, no missing information was determined as essential for the decision maker to make a reasoned choice among the alternatives.

A. No Action Alternative

This alternative would not meet the Purpose and Need (objective) of the EA (pg. 2) of producing a sustainable supply of timber and other forest commodities that would contribute to the local economy. Restoration of past disturbance would not occur. Road densities and conditions would remain unchanged. Only normal programmed road maintenance would be performed. There would be no entry into the Riparian Reserves for the purpose of enhancing conditions of late-successional forest ecosystems and applying silvicultural practices to meet ACS objectives.

Stands - Stands would continue to differentiate in time through growth and mortality. The ORGANON computer model (Hann, 1995) output indicates that trees are under varying degrees of competitive stress at this time. Stands of trees under competitive stress often have height/diameter ratios above 90 and are susceptible to wind throw and more likely to break under snow loads. Trees that have developed over long periods of competitive stress are more likely to be killed by insects and disease (Oliver, 1990, page 40 and 125; Waring, 1985, pages 211-231, Chpt. 2 and 3; Smith, 1962, pages 96-97). Stands left in this condition are slow to respond to improved growing conditions and never attain potential growth rates (Oliver, 1990, pages 352-355; Smith, 1962, page 96 and pages 117-120). When this process occurs in managed stands of Douglas-fir, down wood and snags are made up predominantly of the smaller trees. Accumulations of dead wood consisting of small trees increases fire intensity and rate of spread. The risk of stand damage from fire is increased (Oliver, 1990, page 100; Waring, 1985, pages 214-215; Graham, 1999, pages 1-22). The Silvicultural Prescription (Appendix F) provides a more detailed stand description.

Soil Productivity and Sedimentation - Road construction, renovation, harvest, and haul-related impacts to the soil, and reduction of existing sedimentation sources would not occur. Road-related short-term sedimentation into streams as a result of winter haul associated with the action alternative would not occur; however, sedimentation resulting from other uses including private timber haul, recreational and administrative use, etc. would continue to occur. All compaction and soil displacement from past ground-based operations would continue to heal very slowly through natural processes. There would not be any additional impacts at this time to soil productivity from ground-based operations.

The probability of landslides that are not road-related would be low (less than 10 percent) on the potentially unstable slopes of Units 7A, 7B, 11A, 11C, 11D, 13A, 13C, 15A, 15B, 19A and 29A. This assessment is based on the low level of landslide activity that is not road-related under mid-seral canopies within the project area (aerial photos and field observations). The Oregon Department of Forestry storm impacts and landslide study (Oregon Department of Forestry, 1999; pg. 62-67) indicated that failures were least likely in stands in the 31 to 100 year age class. The likely size of any landslide occurring under the no action alternative would be small (less than 0.1 acre) in the potentially unstable areas, and small to medium (less than 0.1 to 0.35 acre) in the unstable areas, based on the size and distribution of landslides from clear cut to present seral state (aerial photos and the field observation). The likelihood of landslides reaching streams would be variable depending on landslide size and location. Since most of the unstable sites are adjacent to streams, the greatest impacts to streams would originate here.

Water Quality and Hydrologic Processes - There would be no direct impacts to water quality or hydrologic processes, and Beneficial Uses of Water or 303(d) listed streams as described previously. No short-term change in stream temperature, water pH, dissolved oxygen, or other chemical or physical parameters is likely to occur. Hydrologic functions would continue at existing rates and levels unless they are altered by natural disturbances. Vegetation within the Riparian Reserve would continue to slowly develop over time to provide increased shade, bank stability, and large woody debris recruitment as described in the “stands section” above. Without density management, old-growth characteristics within the Riparian Reserves would take much longer to develop. Not treating the proposed forest stands at this time may leave these portions of the watershed overly dense. An overly dense stand increases the risk of a higher severity wildfire. A high severity wildfire would affect a much larger area and would cause far greater impacts to the watershed than the proposed action (Moody and Martin, 2001; pg. 2981).

Fisheries Habitat - Current temperature, sediment inputs, woody debris and hydrologic processes would continue to function at existing rates and levels (see Oregon DEQ and ODFW stream survey data). Fish species and populations would remain relatively unchanged from current trends. The riparian habitat adjacent to the aquatic environment on both fish-bearing and non-fish bearing stream eco-tones, consists primarily of a dense mid-seral monotone of Douglas-fir. Although these stands would continue to mature and develop late-successional characteristics over time, due to the dense forest monotone these stands would develop conditions described in the “stands section” above. The primary effect to the riparian resource would be a decrease in size and structure in future recruitment of large wood and coarse woody components and a long-term increase in stand mortality within the riparian area. Road maintenance activities would occur over time based on request by permittee or on as-needed bases. Fish barrier culverts would be replaced according to District-wide prioritization.

Wildlife Habitat – Habitat is expected to continue to mature and develop as described in the “stands” discussion under the No Action Alternative. It is expected that the early- to mid-seral wildlife habitat that is currently present would continue to function in its current capacity. The diversity of wildlife species and the wildlife populations currently utilizing the stands in the project area are expected to continue using those stands. As the stands mature, structural features (i.e., snow breaks, forked tops, decay, etc.) would be maintained, fostering the creation of nesting habitat for the NSO. The nesting habitat for the northern goshawk, sharp-shinned hawk, and the red tree vole would continue to increase in quality as the stand matures. As the stands in the project area mature, the structural diversity on the forest floor (e.g. downed wood) will continue to accumulate which should benefit species such as the fisher.

B. Proposed Action Alternative

Some irreversible and irretrievable commitment of resources would result from the implementation of this project. An irreversible commitment is a commitment that cannot be reversed whereas an irretrievable commitment is a commitment that is lost for a period of time. An irreversible commitment of petroleum fuels for road building, logging and timber hauling as well as the loss of rock from quarries for crushed rock used in the renovation of the road system would result from the proposed action. The irretrievable loss of old-growth forest on the Matrix portion of the project area would continue since this area is managed on an 80 to 150 year rotation.

Stands - Because the Proposed Action Alternative in this EA proposes to commercially thin timber stands that are 30 to 40 years of age there would be no change in the amount or percentage of late-successional type forests on Federal lands within the affected watersheds. After the uplands are thinned the stands would be composed of between about 60 to 130 dominant conifers per acre. Most of the retained trees have diameters greater than 12 inches. Density management would occur within the Riparian Reserve. Retention would include dominant and co-dominant hardwoods and conifers. The spacing between trees is varied to create canopy openings and clumps of larger trees. Some of the larger conifers would have trees cut around them to maintain large live crowns and limbs. After thinning, the Riparian Reserve would contain between about 30 and 60 dominant and co-dominant overstory trees/acre. Twelve additional trees/acre would be retained to provide CWD. Selected trees would be felled, girdled, or topped at the time of this treatment or within two years. About half of the twelve trees per acre would be felled, and the other half would be topped or girdled. ORGANON (Hann, 1995) output indicates an increase in growth rates, diameters, and live crown ratio with the treatment and the time required to attain large trees would be reduced.

Soil Productivity - Impacts to the soils resource from potential actions include: 1) losses to soil productivity due to compaction, 2) soil displacement from harvest and road construction, 3) surface erosion, and 4) within unit harvest-related landslides.

Direct impacts would result from road building and logging activities. Spur construction accessing Units 1A, 7B, 11A, 11C, 11D, 13A, 15A, 15B, 19A, 29A and 29B would consist of widening existing trails or new construction where no trail previously existed. Construction would cover about four acres of undisturbed land. This would be considered an irretrievable loss to soil productivity since all of the new spurs would not be subsoiled and would be expected to be used in future entries. The total amount of yarding effects on soil productivity would vary

depending upon the actual mix of skyline and ground-based operations. About 215 acres were identified as having potential for ground-based logging. Skyline logging would add small amounts of light, superficial **compaction** on less than one percent of the skyline yarded ground (Sampson Butte and Coon Creek monitoring). Ground-based tractor yarding would use designated skid trails covering about seven percent of the ground. Ground-based harvester-forwarder trails would cover about 20 to 25 percent of the surface; however, the amount of area in main skid trails, log decks, and landings would not exceed the plan maintenance threshold of 10% (based on field observations of Coon Creek and Burma Shave commercial thinning timber sales). Some of the trail coverage would overlap old existing trails with residual compaction. Old plus new compaction over much of the trail lengths would be substantial enough (moderate to heavy) to reduce the growth of adjacent trees. When compacted trails are subsoiled, up to 80% of lost soil productivity can be recovered (Andrus et al, 1983; pg. 8). The amount soil productivity loss that is recovered in the short or long-term would depend on how much amelioration of compaction is deferred until final harvest. The use of a small excavator would minimize damage to the boles and roots of conifers and would allow organic debris to be pulled back over the tilled trails. There would be opportunity to subsoil old skid trails and roads not needed for current operations in Units 19A and 19B. Existing down woody debris would be left on site. This would benefit long-term soil productivity by leaving a nutrient reservoir and a medium for growth of organisms beneficial to the soil.

The proposed action would result in the indirect impact of a slight short-term (ten years or less) increase in the probability of harvest-related **landslides and flows** on the potentially unstable slopes that would be thinned. This would be due to a temporary decrease in canopy interception of precipitation and a decrease in root strength. The increase in risk would be hard to quantify since there has been no scientific research on the subject. Although the probability of debris avalanches would increase, it would still be in the low range (<10 percent) as under the no action alternative. The two main reasons are:

- All of the high risk unstable slopes were removed from harvest consideration.
- The risk of landslides on the potentially unstable slopes under various thinning prescriptions would fall between the low levels of the current unthinned stands and the moderate levels of their early seral stage. Adding the mitigating measures of the action alternative including maintaining an RMZ along streams, higher levels of retention for areas of potential instability in Riparian Reserves (60 to 100 trees per acre, depending on the degree of potential instability), full retention at sites most likely to fail, and dry season logging would keep the risk in the low range.

Based on the above discussion, the occurrence of any landslide under the action alternative would be expected to be within the range of natural variation for unthinned mid-seral stands temporally, spatially and in magnitude. The effect of landslides on soil productivity would likely be small.

Water Quality and Hydrologic Processes - Limited management activities would occur within the Riparian Management Zone (RMZ) where long-term benefits such as improved riparian habitat and increased species diversity can be achieved. Some minor short-term localized direct impacts such as reduction in shade and minor sedimentation resulting from felling trees adjacent to streams could occur; however these impacts would be minimal and would not have a noticeable affect on water quality. Beneficial Uses of Water in all three watersheds and the 303(d) listed sections of Calapooya Creek and the North Umpqua River would not be affected by either alternative. No short-term change in stream temperature, water pH, dissolved oxygen, or

other chemical or physical parameters is likely to occur under the action alternative due to the buffering effect of the 40 - 100 ft. no harvest zone along all streambanks. In the long-term, water quality is expected to improve compared to existing conditions.

Indirect impacts of the action alternative could result in a small but temporary increase in water yield and summer low flows. Any increase, however, is expected to be within the range of natural variability. Increases in soil moisture, resulting from less interception and evapotranspiration from reduced vegetative cover, would likely be consumed by the stimulated growth of the residual stand (Satterlund and Adams, 1992; p. 253). Minor increases in summer flow resulting from excess soil moisture not taken up by the residual stand would benefit riparian areas, which are often moisture limited during the summer. A hydrologic effect known as the Transient Snow Zone (TSZ) effect is the effect from a warm rain-on-melting snow event that contributes to increased peak flows due in part to large openings created within the TSZ. No measurable increase in peak flows as a result of rain-on-snow events is expected. The proposed thinning only involves a small percentage ($< 1\%$) of each of the three fifth-field watersheds, and an even smaller percentage of the TSZ with partial cuts resulting in small (less than 1/4 acre) openings.

Existing haul roads were reviewed and are well constructed with overall good to excellent surfacing. Overall potential for sediment delivery to streams from haul roads is low. Sediment delivery to streams would be reduced through minor improvements in road surfacing and drainage, limiting haul to the dry season, or if winter haul through the use of sediment control structures (ex., straw bales) at stream crossings and cross drains of concern.

Fisheries Habitat - Actions potentially affecting the fisheries habitat include: 1) density management within the Riparian Reserves; 2) stream sedimentation due to road construction, timber hauling, and harvest related landslides; and 3) watershed enhancement activities (density manipulation, log culvert removal, and streambank stabilization) in Unit 13B. Each of these actions is detailed below.

Density management would take place within the Riparian Reserves. This activity is specifically prescribed to enhance the Riparian Reserve and adjacent aquatic environment. No direct impacts are anticipated from management activities outside the RMZ to the fisheries habitat. Impacts from management activities within the RMZ through sedimentation and a reduction in shade from trees being felled adjacent to streams are not anticipated to affect the stream channel. These impacts would be minimal since at most only twelve trees per acre would be treated by girdling or felling and left in place and none of the trees would be felled into streams. Impacts from the felling and girdling are expected to benefit the riparian area through course woody debris accumulation. Long-term effects from density management activities within the Riparian Reserve would occur through development of late-successional conditions such as increases in course woody debris, litter fall, root strength, shading and associated microclimate conditions (FEMAT, pg. V-26 to V-28). The short-term effects within the RMZ would be inconsequential whereas the long-term effects would enhance the riparian resources within the project area.

Some pathways for short-term soil displacement and potential sediment delivery may occur as a result of localized soil disturbance from felling, cable yarding, and ground based equipment operations. The few yarding trails that could pose sedimentation risks would be waterbarred with slash pulled into them. The RMZ, as described above, is intended to function as a stream

protection buffer to limit potential impacts from harvest activities. The 40 foot minimum buffer would be sufficient to maintain bank stability because the majority of the contribution of root strength in maintaining streambank integrity occurs within a distance of one-half the crown diameter (FEMAT, 1993; pg. V-26). The RMZ would provide an adequate filter strip and minimize delivery of sediment to streams from harvest related short-term impacts. In the long-term, large wood contributed to the Riparian Reserve as a result of density management has the potential to create additional capacity for sediment storage.

Research has shown that the greatest potential for unmitigated stream **sedimentation** is **from road construction** (FEMAT, 1993; pg. V-16) however, in-stream sedimentation from the proposed project is expected to be negligible for the following reasons: 1) construction would be on stable locations at and just below ridge tops on gentle to moderate slopes (10 to 40 percent), 2) spur locations are away from streams, and 3) newly constructed natural surfaced roads and spurs would be waterbarred and blocked to traffic during the same dry season as logging. Any sediment from these segments would filter onto the forest floor before reaching streams and not impact the fisheries habitat. The improvement of drainage, and the rocking of some segments deficient of rock on the existing roads would also reduce chronic erosion and lessen the potential of erosion due to culvert failure. These standard road maintenance practices would substantially reduce road-related sediment delivery to adjacent streams.

Impacts of **sedimentation from the haul road activity** to the aquatic environment was considered, however is difficult to quantify or measure (Brown, 1985). Direct impacts to the aquatic environment from wet season haul of the Copeland Divide Timber Sale on the 25-4-12.1 road (Gassy Creek Road) and on the Boyd Howdy Timber Sale on roads 24-3-7.0, 24-4-11.3, 24-4-13.0, 24-4-14.1 and 24-4-22.0 are expected. However, any sedimentation resulting from the haul road activity would not be measurable and is not expected to be above existing background levels within the stream channels when PDC's (pg. 7-8) are applied and therefore, is not likely to have an affect on habitat for coho salmon, as well as habitat for cutthroat and steelhead trout. No direct or indirect impacts of any consequence are expected from the dry season haul road activities. Any sediment expected to reach streams as a result of haul would be mitigated though the following: 1) All segments of naturally surfaced roads (both existing and newly constructed) would have dry season haul. All new construction segments would be waterbarred and blocked to traffic during the same season as use. These features would result in virtually no sediment to streams. 2) Based on a study (Burroughs, 1990; pg. 225) ten inches of 1.5 inch minus gravel reduces the impacts of forest-road sedimentation by 99%. The rocked portions of the proposed haul roads are in overall good condition and road renovations and/or improvements would upgrade the roads to current standards of rocked portions rocked with 12 inches of gravel resulting in few fines available for sediment transport. 3) For the wet season haul portion all culvert crossings would be inspected prior to haul for implementation of PDC's that would lessen sedimentation concerns (i.e., use of hay bales, sediment curtains, etc.). 4) A study by Luce and Black in the Oregon Coast Range on soils similar to those of the affected environment showed substantial reductions in sediment delivery (about 80 percent) where well vegetated or armored (covered with rock fragments) ditch lines of rocked roads were left ungraded. With few exceptions, the haul route ditch lines are well vegetated or armored and would remain ungraded. In addition, nearly 70% of the proposed project area would involve dry season haul. Dry season haul on rocked roads generates considerably less sediment than wet season haul. The first order streams (all non-fish bearing) where crossings occur have sediment filtering capacities. Eleven out of the 17 wet season haul route stream crossings within the Boyd Howdy Timber Sale are on first order streams. The proposed haul route would cross five fish-bearing streams, Boyd Creek,

Mill Creek, Haney Creek, Gossett Creek, and an unnamed tributary to Gossett Creek. All of the fish-crossing culverts on the above referenced streams have been inspected and are in good condition. The haul route for Copeland Divide TS crosses three fish bearing streams (Calapooya River, Field Creek, and Slide Creek). The crossing on Calapooya River consists of a paved bridge which is not expected to be a concern for sediment. The two remaining fish-bearing culverts on Field and Slide Creek are in good condition and function properly. The haul route also includes thirty-one non-fish bearing culvert crossings (twenty-four on Gassy Creek and seven on French Creek). See Appendix B for haul route locations.

In the absence of **harvest-related landslides** (indirect impact), there would be very little sediment originating from thinned stands, and with the “no-harvest” buffer in place, negligible impact to streams under the action alternative (Sampson Butte and Coon Creek monitoring observations). If harvest-related landslides do occur, their size would tend to be small (less than 0.1 acres) and the risk of them reaching streams would generally be low. However, medium sizes up to 0.2 acres are possible (low risk) in Units 11A and 13A where the deeper soils over weak bedrock are present. Most small landslides would be effectively slowed down and stopped by heavy retention and the wider Riparian Management Zone. For them to reach streams, their initiation points would need to be in close proximity to the streams. Because of the minimum 100 feet no-cut zone along fish-bearing streams, it is unlikely that harvest-related landslides would directly affect fish bearing streams. Some of the resultant sediment might reach further downstream to fish-bearing streams within the watershed; however, it would not likely to have any adverse impact on the fisheries habitat. Landslides directly reaching fish bearing streams could occur if the period of heightened risk (when canopy cover would be reduced from that of the unthinned condition) intersects with high intensity, long return interval storms (low probability). However, the larger and more frequent landslides associated with these storms also occur in unthinned mid-seral stands (aerial photo landslide inventories, Swiftwater Field Area). Consequently, the effects of landslides reaching streams under the action alternative would be within the range of natural variation for unthinned mid-seral stands temporally, spatially and in magnitude. The consequences of sediment delivered by landslides would then not be substantially different from that of the no action alternative.

Unit 13B is adjacent to a non-fish bearing tributary to Gossett Creek and was originally reviewed for commercial thinning but was determined not to be suitable for harvest. This unit was reevaluated for **watershed enhancement** purposes instead. An overall benefit to ACS elements is possible through density management (silvicultural prescription similar to that prescribed for the Riparian Reserve but applied throughout the whole unit). Additionally, removal of two log culverts, subsoiling, and stream bank stabilization through bio-engineering techniques on a non-fish bearing tributary to Gossett Creek would also benefit the watershed. The enhancement activities as described above would not be in conjunction with the commercial thinning or road maintenance activities, but would be evaluated in this environmental assessment and commence with available funding at a later date.

Wildlife Habitat - Short-term impacts would occur from noise disturbance and opening of the canopy. Habitat within the Riparian Reserve and the Matrix would be enhanced in the long-term by accelerating mature forest characteristics and introducing diversity but the Matrix portion is expected to be final harvested after age 80.

T&E species – Impacts by thinning activities would modify 783 acres of designated Critical Habitat for the northern spotted owl (NSO) and 1,219 acres of NSO dispersal habitat. As the stand grows and crown closure re-occurs, it will return to functioning dispersal habitat. Thinning activities could potentially affect NSO nesting behavior if surveys determine that the current activity center lies within 0.25 miles of the project area.

Survey and Manage Species - Direct Impacts from thinning activities would modify 1,232 acres of red tree vole habitat, potentially affecting dispersal. As the stand grows and crown closure re-occurs, red tree vole habitat would be enhanced. The Oregon megomphix sites detected within the project area were found March 10, 2003 and therefore do not require protective buffers (S&M ROD).

Special Status Species – Thinning activities would be above ambient noise levels and could disrupt the nesting behaviors of the peregrine falcon if present. However, the project design criteria (see pg. 11, para. 9.c.) should mitigate effects to this species.

There are no anticipated effects to the fisher, Townsend's big-eared bat, or the western pond turtle. The suitability of the habitat present for these species would be modified by the commercial thinning but is expected to maintain its functionality. For more information regarding Threatened and Endangered Species, Survey and Manage Species, or other Special Status Species, refer to Appendix F, Tables 1-4.

C. Cumulative Impacts Analysis

The following paragraphs discuss the cumulative impacts of the action. These impacts are described for federal lands in the FSEIS beginning on page 3&4-4 and throughout the chapter based on the resource affected. Unless otherwise noted, these effects are described in the context of the fifth-field watershed scale. Approximately 60 % of the Elk Creek Watershed (224,310 acres), 43% of the Calapooya Watershed (157,194 acres) and 34% of the Lower North Umpqua Watersheds (106,193) are managed for timber production. The majority of this project occurs within the Calapooya Creek fifth-field watershed. The Calapooya Creek Watershed Analysis provides baseline information with which to assess potential future cumulative impacts. Cumulative impacts from forestry activities could occur on approximately 40% of the watershed. Seven percent is on federal lands and 33% on private industrial forest lands. There has been a continued conversion of late seral and old-growth habitat on private, industrial forest lands to early seral stages. Current management strategies on private land are to harvest at age 40 - 60 years and would preclude the development of older seral conditions in the future on these lands. The Whatagas Regeneration Timber was analyzed under EA #OR-104-98-06. This sale, when implemented, would remove approximately 135 acres of mature and old-growth timber in this watershed.

Water Quality and Hydrologic Processes - The proposed project would affect a small percentage in each of the Calapooya Creek, Lower North Umpqua, and Elk Creek watersheds. The long-term cumulative effects of Riparian Reserve treatments under this and other future federal projects would promote late-successional characteristics. Thinning activities would improve forest health and encourage the development of late-successional characteristics in Riparian Reserves including the long-term recruitment of coarse woody material. As Riparian Reserves attain late-successional characteristics, improvements in riparian health, riparian vegetation, instream wood amounts, small channel capacity to store water and sediment, summer

low flows, stream temperatures, and the delivery of upland nutrients to streams and hyporheic zones may occur.

Fine sediment delivery due to BLM roads would decrease over time because of road improvements and renovations throughout the watershed. Peak flows may be influenced by rain on snow events from reduced stand densities on private and BLM-administered lands. However, the limited size, spatial scattering, and lower harvest intensity of treatment areas on BLM lands along with road drainage improvements would help to mitigate these effects. Any sediment added to the streams as a result of the action alternatives would be indistinguishable from background levels and therefore add very little to the cumulative impacts of sedimentation at the fifth-field scale and would be within the range of natural variation.

The Whatagas timber sale would take place in the Gassy Creek drainage area of the Calapooya Creek Watershed. This sale would occur completely outside of Riparian Reserves, and very little of the sale area would be within the transient snow zone. No additional impacts are expected from the combined effects of Whatagas and the proposed projects described in this EA.

Soil Productivity - The proposed action along with the Whatagas regeneration sale would add a small net increase of soil productivity loss when viewed at the fifth field watershed scale. Ground-based harvest operations (both federal and private) were widespread in the Calapooya and Lower North Umpqua Watersheds in the 1950's through 1970's. "Loggers' choice" ground-based yarding had a considerable effect on long-term soil productivity (estimated to be between 15 to 30 percent reduction where ground-based yarding occurred) through compaction, erosion and soil displacement. Other management practices such as road construction and broadcast burning along with landslides have added to the cumulative impacts to soil productivity. Whatagas would only add an increment (approximately one acre) of ground-based compaction to that analyzed in this project. Some of the compaction, both old and new, would be ameliorated now or at final harvest. The spur construction for these sales would add 3.0 miles of road covering eight acres (approximately five acres of new disturbance and three acres of additional disturbance over existing trails) to the extensive network of timber haul roads in the two watersheds. Only the new Whatagas spurs would be fully decommissioned and subsoiled, thereby recovering a substantial part of the soil productivity lost through construction and use. The net loss in soil productivity due to all new spurs would be partially offset by the full decommissioning of 2.1 miles of existing roads by mechanical (ex., pulling culverts, recontouring and subsoiling) and by passive natural means for those in a more advanced stage of recovery. Harvest-related landslides are expected to be few and small.

A small percentage of the soil productivity losses due to roads and harvest on BLM in these two watersheds have been recovered through very slow natural processes. However, the cumulative amount of this ongoing natural recovery is probably large compared to the soil productivity losses that would occur under the action alternative. Because of the scale of this ongoing natural recovery and because of the degree to which both old and new impacts would be ameliorated under the action alternative, the net long-term effect would be that of maintaining or improving long-term productivity at the watershed scale on BLM managed lands despite periodic decreases at the project level scale. The SEIS stated that the Matrix lands would have the highest management induced disturbance and the lowest probability of all the land use allocations of maintaining long-term soil productivity. Even so, it concluded, "Implementation of the appropriate soil management prescriptions and best management practices should prevent unacceptable degradation of the soil resource and related long-term productivity" (SEIS 3&4-112).

Fisheries Habitat - The proposed project areas contain Riparian Management Zones (RMZ) designed to minimize adverse impacts to the aquatic environment. The proposed non-commercial aspects (pg. 6, para. 1a3) within the RMZ consist of enhancement measures that are designed to restore fisheries habitat over a period of decades. Other related management activities likely to occur within Elk Creek, Calapooya and Lower North Umpqua Fifth-field Watersheds include both BLM and private timber harvest and silvicultural treatments. The portion of the proposed timber related activities within the Elk Creek Fifth-field Watershed, Calapooya Fifth-field Watershed and Lower North Umpqua Fifth-field Watershed represent less than one percent of the entire watershed respectively. Remaining timber related activities within the above referenced watersheds, would comply with the Northwest Forest Plan (BLM activities) or Oregon Forest Practices Act (private timber management), governing timber related impacts to water quality and fisheries habitat. Therefore, and current conditions should be maintained within the fisheries habitat and improve over time.

Wildlife Habitat - The proposed project manages the Riparian Reserve to enhance the development of old-growth characteristics in the reserve. These characteristics would continue into the next rotation of the stand to provide northern spotted owl (NSO) nesting, roosting, and foraging habitat. The loss of mid- to late-seral habitat on private land is expected to continue as the land is managed on a rotation of approximately 60-80 years. NSO and red tree vole dispersal habitat on this land is likely to be maintained, but at some lower level than exists at present.

V. CONTACTS, CONSULTATIONS, AND PREPARERS

A. Agencies, Organizations, and Persons Consulted

The Agency is required by law to consult with certain federal and state agencies (40 CFR 1502.25).

1. Threatened and Endangered (T&E) Species Section 7 Consultation - The Endangered Species Act of 1973 (ESA) requires consultation to ensure that any action that an Agency authorizes, funds or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat.

a. The required ESA consultation for T&E wildlife species was accomplished with the **US Fish and Wildlife Service (FWS)** and the Biological Opinion was received on February 21, 2003 (Ref. # 1-15-03-F-160). The Biological Opinion (pg. 29) concluded the proposed action is “not likely to jeopardize the continued existence of the spotted owl . . . and bald eagle, and are not likely to adversely modify spotted owl . . . critical habitat” and an “Incidental Take Statement” was issued. Incidental Take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency. The FWS has stipulated terms and conditions for the Incidental Take having to do with seasonal restrictions for the northern spotted owl.

b. The BLM road maintenance and aquatic and riparian habitat projects (fish-bearing culverts) activities within the proposed project area are considered activities that are likely to occur with or without the proposed timber sales and are covered under the **National Marine Fisheries Service (NMFS) Programmatic Biological and Conference Opinion** issued

October 18, 2002 which made the determination that these activities are "... not likely to jeopardize the continued existence of ... OC coho salmon, or OC steelhead trout." In addition, the proposed activities were analyzed for, and determined to not adversely affect Essential Fisheries Habitat (EFH). The above referenced activities would be in accordance with all PDC's, Terms and Conditions, and EFH Conservation Recommendations within the NMFS Programmatic Biological and Conference Opinion.

The timber sale activities include the timber harvest, new road construction, and associated impacts of timber haul. The Roseburg District's Biological Assessment for T&E fish species consultation was submitted to the **National Oceanic and Atmospheric Administration** (NOAA - fisheries) on June 6, 2003 (Copeland Divide) and August 1, 2003 (Boyd Howdy). The Biological Assessments made the determination that these projects would result in a "may effect, not likely to adversely affect" for the Oregon Coast coho salmon and the Oregon Coast steelhead trout. A Letter of Concurrence was received on July 11, 2003 (Copeland Divide) which concurred with this determination. A Letter of Concurrence is expected for Boyd Howdy in mid-October.

2. Cultural Resources Section 106 Consultation - Consultation as required under Section 106 of the National Historic Preservation Act with the **State Historical Preservation Office** (SHPO) was completed on March 4 (Boyd Howdy) with a "No Effect" determination. Consultation responsibilities under the 1997 National Programmatic Agreement and the 1998 Oregon Protocol have been completed for Copeland Divide and no consultation with SHPO was required.

B. Public Notification

1. Notification was provided to affected **Tribal Governments** (Confederated Tribes of the Coos, Lower Umpqua and Siuslaw; Grande Ronde; Siletz; and the Cow Creek Band of Umpqua Indians). No comments were received.
2. A letter was sent to five **adjacent landowners**. No comments were received (see Appendix G - Public Contact).
3. The **general public** was notified via the *Roseburg District Planning Update* (Summer 2002) going to approximately 150 addressees. These addressees consist of members of the public that have expressed interest in Roseburg District BLM projects. Comments were received from Francis Eatherington representing Umpqua Watersheds, Inc. (see Appendix D - Issue Identification Summary).
4. Notification will also be provided to certain **State, County and local government** offices (see Appendix G - Public Contact).
5. A 30-day **public comment period** will be established for review of this EA. A Notice Of Availability will be published in *The News-Review*. This EA and its associated documents will be sent to all parties who request them. If the decision is made to implement this project, a notice will be published in *The News-Review*.

C. List of Preparers

Isaac Barner	Cultural Resources
Bruce Baumann	Layout Forester (Boyd Howdy)
Kevin Cleary	Fuels Management
Chip Clough	Fisheries (Boyd Howdy)
Mike Crawford	Fisheries (Copeland Divide)
Dan Cressy	Soils
Dan Dammann	Hydrology
Elizabeth Gayner	Wildlife (Copeland Divide)
Bob Gilster	Engineer (Boyd Howdy)
Craig Holt	Layout Forester (Copeland Divide)
Al James	Silviculture
Fred Larew	Lands
Jim Luse	EA Coordinator / EA Preparer
Rex McGraw	Wildlife (Boyd Howdy)
Ron Murphy	Recreation / VRM
Evan Olson	Botany (Boyd Howdy)
Ron Wickline	Botany (Copeland Divide)

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- U.S. Department of Agriculture, Forest Service, and U.S. Department of the Interior, Bureau of Land Management. April 13, 1994. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl (ROD) and standards and guidelines for management of habitat for late-successional and old growth related species within the range of the northern spotted owl (S&G).
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA – fisheries). October 18, 2002. Programmatic biological and conference opinion.

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT






The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order. These resources or values are either not present or would not be affected by the proposed actions or alternatives, unless otherwise described in this EA. This negative declaration is documented below by individuals who assisted in the preparation of this analysis.


Element	Responsible Position	Not Present	Not Affected	In Text	Initials	Date
Air Quality	Fuels Management Specialist		✓		WMO	8/22/03
Areas of Critical Environmental Concern	Environmental Specialist	✓			JSL	8/20/03
Cultural Resources	Archeologist	✓			MKB	8/21/03
Environmental Justice	Environmental Specialist		✓		JSL	8/20/03
Farm Lands (prime or unique)	Soil Scientist	✓			DCC	8/20/03
Flood Plains	Hydrologist		✓		DD	8/20/03
Invasive, Nonnative Species	Botanist			✓	(Signature)	8-20-03
Native American Religious Concerns	Environmental Specialist		✓		JSL	8/20/03
Threatened or Endangered Species (fish)	Fisheries Biologist			✓	area	8/20/03
Threatened or Endangered Species (plants)	Botanist	✓			(Signature)	8-20-03
Threatened or Endangered Species (wildlife)	Wildlife Biologist			✓	ELH	8/20/03
Hazardous/Solid Wastes	Area Hazardous Materials Coordinator	✓			LB	8/22/03
Water Quality Drinking/Ground Water	Hydrologist			✓	DD	8/20/03
Wetlands/Riparian Zones	Hydrologist			✓	DD	8/20/03
Wild and Scenic Rivers	Recreation Planner		✓		MM	8/22/03
Wilderness	Recreation Planner		✓		MM	8/22/03

Appendix A

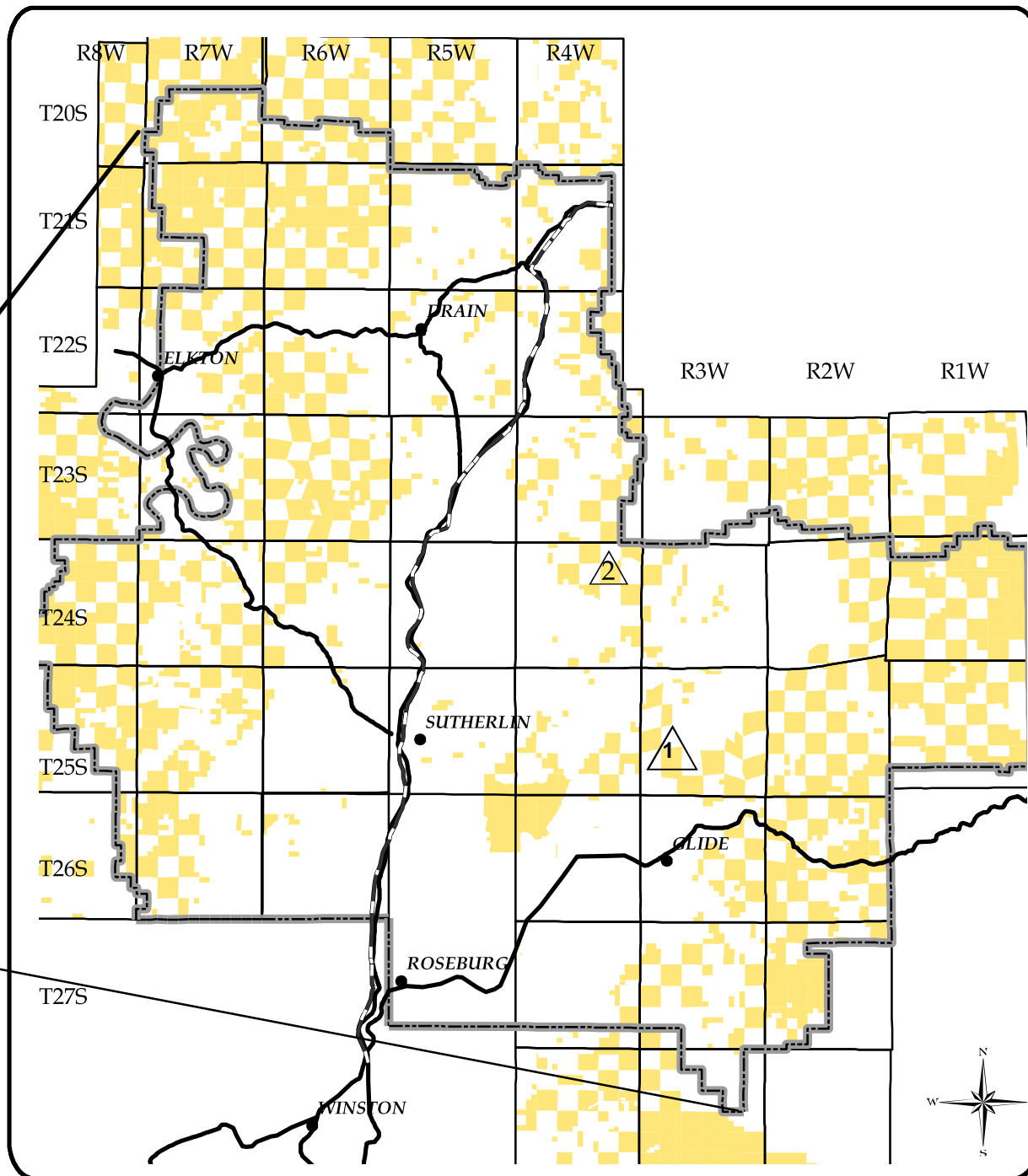
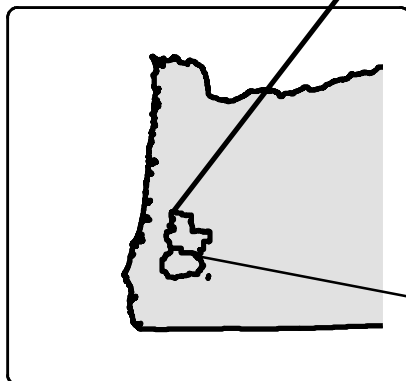
Location Map 2003 Commercial Thinnings

Legend

-  Swiftwater RA Boundary
-  BLM Lands
-  Interstate 5
-  Major Oregon Highways
-  Towns

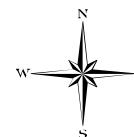
 Copeland Divide Commercial Thinning

 Boyd Howdy Commercial Thinning

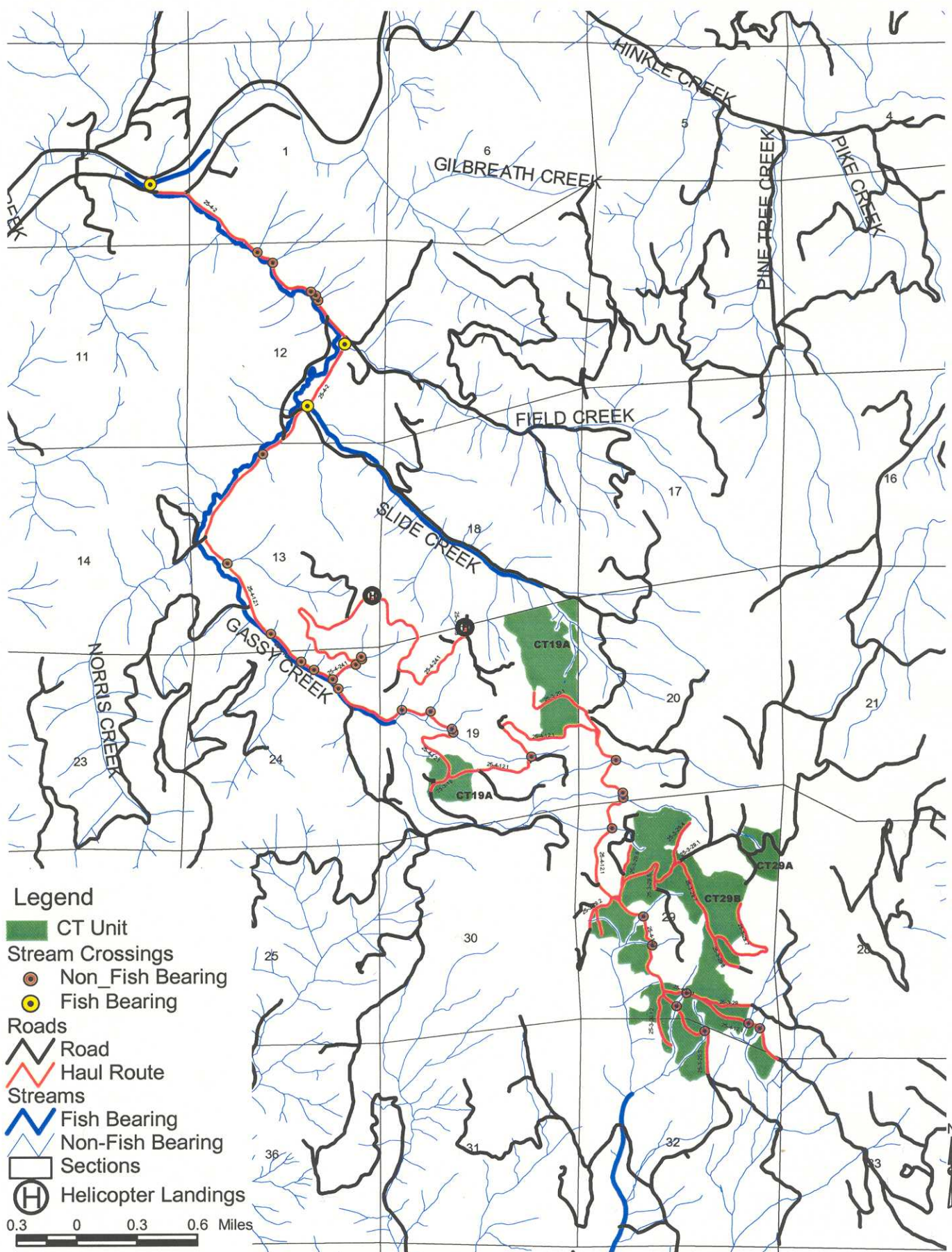


United States Department of the Interior
Bureau of Land Management
Roseburg District Office
777 NW Garden Valley Blvd
Roseburg, OR 97470

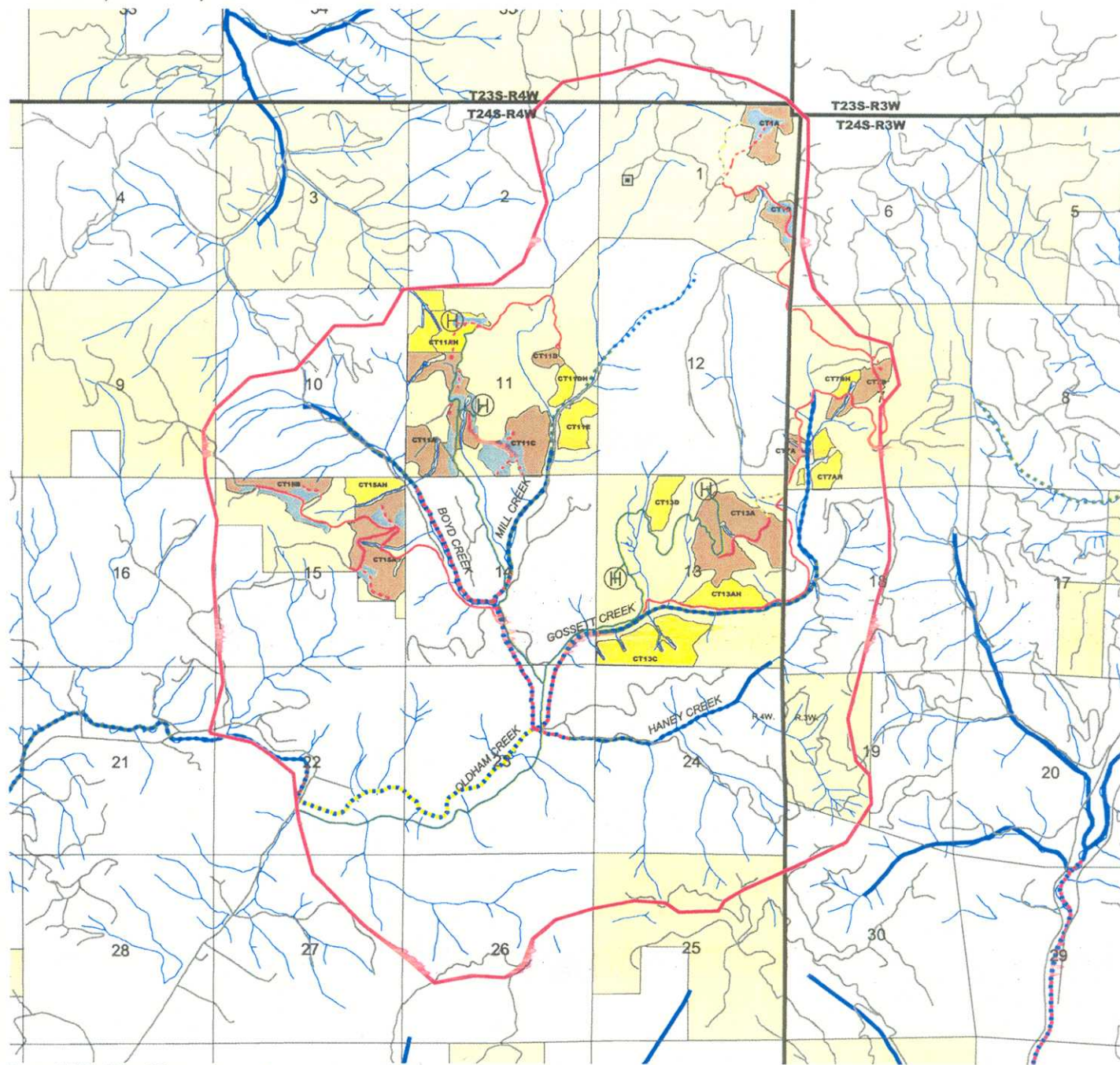
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.



Appendix B Vicinity Map: Copeland Divide CT



Boyd Howdy T.S.
T24S, R4W, Sections 1,11,13 and 15
T24S, R3W, Section 7



Proposed Units - Harvest Type

- Ground
- Cable
- Helicopter
- Township-Range
- Section Line
- BLM Lands
- Action Area
- Roads



ODFW Reach Numbers

- 1
- 2
- 3
- 4
- 5
- 6

- Decommission
- Dry Haul
- Wet Haul
- Roads
- Spur
- Helicopter Landing
- Rock Quarry

Map Date: 7/25/03
Scale: 1: 50,000



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

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- Other references as cited in the individual Specialist's Reports (Appendix F - Analysis File).

APPENDIX C

INDIVIDUAL UNIT DESCRIPTION

Project Summary Table

EA Unit	Project Area	Acres	Yarding System (ac.)			Fuel Treat.	Remarks
			Aerial	Cable	Ground		
1A	1	36		OES (30)	DST/ROW (6)	P&BL	Boyd Howdy
1D	2	25		OES (17)	DST (8)	“	“
7A	3	41	23	OES (17)	ROW (1)	“	“
7B	4	32	5	OES (27)		“	“
11A	5	130	30	OES (81)	DST/ ROW (19)	“	“
11C	6	56		OES (34)	DST/ROW (22)	“	“
11D	7	21	11	10		“	“
11E	8	28	28			“	“
13A	9	130	30	89	DST/ ROW (11)	“	“
13B		48					Restoration
13C	10	71	71			“	Boyd Howdy
13D	11	19	19			“	“
15A	12	102	19	OES (75)	DST/ ROW (8)	“	“
15B	13	40		OES (25)	DST/ ROW (15)	“	“
19A	1	97	51	OES (31)	H/F (15)	“	Copeland Divide
19B	2	28			H/F (28)	“	“
29A	3	25		OES (20)	H/F (5)	“	“
29B	4	285		OES (217)	H/F (68)	“	“
Total		1214	287	673	206		

Yarding System

OES = Cable Yard, One End Suspension Required
DST = Ground Based, Designated Skid Trails Required
ROW = Ground Based, Yarding of Road Right of Way Timber
H/F = Ground Based, Harvester/Forwarder

Fuel Treatment

P&BL = Pile and Burn Landings

Directions to the Project Area

Follow Interstate 5 north from Roseburg to Exit 136 (Sutherlin). Proceed east on County Road 19 (Central St.) . . .

For Boyd Howdy: approximately six miles to Plat B Road. Turn left on Plat B Road then right on Fair Oaks Road and left on County Road 22 (Driver Valley Road), thence north four and a half (4.5) miles to BLM Road # 24-4-22.0 (Gossett Cr.). Follow Appendix B and C to individual units.

For Copeland Divide: approximately ten and a half (10.6) miles to BLM Road # 25-4-2.0 (Gassy Creek Road). Follow the Gassy Creek Road approximately five miles to the project area and Appendix B and C maps to individual units.

Units are marked with boundary posters and blazed and orange painted trees.

APPENDIX D

ISSUE IDENTIFICATION SUMMARY

This appendix summarizes the issues that were identified pertinent to this project. A given issue can be eliminated from further analysis for one or more of the following reasons: (1) it is beyond the scope of this analysis, (2) the impacts were anticipated and analyzed in the FEIS, (3) Project Design Criteria (PDC) included in the preferred alternative would be adopted to mitigate the anticipated environmental impacts of specific activities, and (4) the issue does not meet the objectives and purpose of the project.

A. Issues Identified During Project Design

The following issues were identified during project design. These issues arose from Specialist input as well as public comments that were received. Section II, paragraph C (pg. 6) provides a list of specific PDC incorporated into the preferred alternative to deal with these issues.

Issue #1 (Botany): Scattered noxious weeds throughout the project area (IDT #2, 9/20/2002).

Mitigation: Cleaning of logging equipment prior to entry on BLM lands as well as roadside brushing and/or herbicide application prior to the start of management activities (EA page 10).

Issue #2 (Soils): Areas of instability (slumps, scarps or earthflows) and FGR/FPR areas in Units 7A, 7B, 11A, 11C, 13A, 15A, 19A and 29B (IDT #2, 9/20/2002).

Mitigation: 1. Include in RMZ (Unit 7A, 7B and 11A) and leave uncut (page 7).
 2. Dry season log all FGR/FPR areas (Units 13A, 15A, 19A, and 29B) (page 8).
 3. Extra retention on slumps, scarps and steep areas (Units 11A, 11C, 13A and 29B) (page 9).
 4. Reserve major slumps from units (Units 19A and 29B) (page 9).

Issue #4 (Soils): Past compaction from old roads and skid trails (Units 1A, 13C, 15A, 19B, and 29A) (IDT #3, 11/14/2002).

Mitigation: Subsoil compacted areas of decommissioned roads, temporary spur roads and existing skidtrails from previous entries (when a post-operation evaluation indicates excessive compaction and where practical) with a winged subsoiler (or equivalent) (see page 9).

Public Issues:

Comments were received from two individuals with a total of four pages of comments. Most of the issues identified were also noted by the ID Team. The main focus of these issues is summarized as follows:

1. "The BLM must fully consider the cumulative impacts of Whatagas in the . . . EA."

Response: The impacts of the Whatagas Timber Sale were considered beginning on page 22.

2. "... BLM . . . [needs to leave] some of the largest trees to be thinned [in the Riparian Reserve] for wildlife restoration, instead of yarding and selling them." "... develop future snags by inoculating . . . with native fungi . . .".

Response: Since the silvicultural prescription is to thin from below (i.e. removal of the smaller diameter trees to promote the growth of the larger dominant and co-dominant trees) then the largest trees present would be favored to be marked for retention. Twelve trees per acre would be girdled or felled and two trees per acre of this number would be topped to provide an interim source of coarse woody debris and interim snags until the stand becomes mature (page 6). Field results as to the effectiveness of inoculation as a method of creating snags has not shown a huge success. There are no plans to use this method at this time.

3. "The BLM should completely avoid cutting or harming any residual old-growth in the project area. . . . New roads should be routed around old trees and if that is not possible, the units should be helicopter logged. If old-growth is needed for anchor trees, then other methods should be considered."

Response: Mature and OG remnants would be preserved to the maximum extent possible and effort will be made to protect these trees; however, they might not be protected in every case. The Decision Document will disclose the degree to which large trees will be maintained.

4. "... consideration be given to fuel loadings and fire hazards in the area. . . . careful attention should be given to the large woody material left on the sites. . . . [use] standards developed by the Southwest Regional PAC . . . [as the] standard in the development of this project."

Response: Accumulations of dead wood from the small trees felled for interim coarse woody debris would increase fire intensity and rate of spread and thereby increase risk to the residual stand.

B. Issues Specified by Regulation

"Critical Elements of the Human Environment" is a list of elements specified in BLM Handbook H-1790-1 that must be considered in all EA's. These are elements of the human environment subject to requirements specified in statute, regulation, or Executive Order. These elements are as follows:

1. Air Quality
2. Areas of Critical Environmental Concern (ACEC)
3. Cultural Resources
4. Environmental Justice
5. Farm Lands (prime or unique)
6. Floodplains
7. Invasive, Nonnative Species
8. Native American Religious Concerns
9. Threatened or Endangered Species
10. Wastes, Hazardous or Solid
11. Water Quality, Drinking / Ground
12. Wetlands / Riparian Zones
13. Wild and Scenic Rivers
14. Wilderness

These resources or values (except item #9) were not identified as issues to be analyzed in detail because: (1) the resource or value does not exist in the analysis area, or (2) no site specific impacts were identified, or (3) the impacts were considered sufficiently mitigated through adherence to the NFP S&G's and RMP Management Actions/Direction therefore eliminating the element as an issue of concern. These issues are also briefly discussed in Appendix E ("Critical Elements of the Human Environment"). Item #9 is previously addressed in this EA and the Biological Assessment which is prepared for consultation required by the Endangered Species Act (Appendix F).

The following items are not considered a Critical Element but have been cited by regulation or executive order as an item warranting consideration in NEPA documents:

Healthy Lands Initiative - This project would not violate the Healthy Lands Initiative. This project would be in compliance with the RMP which has been determined to be consistent with the standards and guidelines for healthy lands (43 CFR 4180.1) at the land use plan scale and associated time lines.

National Energy Policy - Executive Order 13212 provides that all decisions made by the Bureau of Land Management will take into consideration adverse impacts on the President's National Energy Policy. This project would not have a direct or indirect adverse impact on energy development, production, supply, and/or distribution and therefore would not adversely affect the President's National Energy Policy.

C. Issues to be Analyzed

The Interdisciplinary Team did not identify any issues as having sufficient potential affect that would warrant detailed analysis as a key issue to be addressed in Section IV, "Environmental Consequences".

APPENDIX E

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

Element	Relevant Authority	Environmental Effect
Air Quality	The Clean Air Act (as amended)	Minimal - Temporary smoke intrusion into populated areas is possible but not likely. Dust particles may be released into airshed as a result of road construction /renovation and timber hauling.
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (FLPMA)	None - Project area is not within or near a designated or candidate ACEC.
Cultural Resources	National Historic Preservation Act of 1966 (as amended)	"No Effect" - (Boyd Howdy) SHPO Report 3/04/03 No consultation required (Copeland Divide).
Environmental Justice	E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 2/11/94.	None - The proposed project areas are not known to be used by, or disproportionately used by, Native Americans, minorities or low-income populations for specific cultural activities, or at greater rates than the general population. According to 2000 Census data approximately six percent of the population of Douglas County was classified as minority status (<i>Oregonian</i> , Pg. A-12; March 15, 2001). It is estimated that approximately 15% of the county is below the poverty level (Frewing-Runyon, 1999).
Farm Lands (prime or unique)	Surface Mining Control and Reclamation Act of 1977	None - "No discernable effects are anticipated" (PRMP pg. 1-7)
Floodplains	E.O. 11988, as amended, Floodplain Management, 5/24/77	None - Project is not within 100 yr. floodplain.
Invasive and Nonnative Species	Lacey Act, as amended; Federal Noxious Weed Act of 1974 as amended; Endangered Species Act of 1973, as amended; and EO 13112 on Invasive Species dated February 3, 1999.	Project Design Criteria would be included in the proposed action to prevent or control the spread of noxious weeds (EA, pg. 10).
Native American Religious Concerns	American Indian Religious Freedom Act of 1978	None - No concerns were noted as the result of public contact.

Element	Relevant Authority	Environmental Effect
Threatened or Endangered Species	<p>Endangered Species Act of 1973 (as amended)</p> <p>The Pacific Coast Recovery Plan for the American Peregrine Falcon, 1982</p> <p>Columbian White-tailed Deer Recovery Plan, 1983</p> <p>Recovery Plan for the Pacific Bald Eagle, 1986</p> <p>Recovery Plan for the Marbled Murrelet, 1997</p>	<p>None</p> <p>(Botanical) - No T&E or other Special Status Species noted (EA, pg. 12).</p> <p>(Animals) - See Table 1, Appendix F (wildlife) and Table 5 (fisheries). T&E species not specifically mentioned do not exist in the analysis area.</p>
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended	None - Applicable HazMat policies would be in effect.
Water Quality, Drinking / Ground	<p>Clean Water Act of 1987;</p> <p>Safe Drinking Water Act Amendments of 1996;</p> <p>EO 12088, Federal compliance with pollution control standards (October 13, 1978)</p> <p>EO 12589 on Superfund implementation (February 23, 1987); and</p> <p>EO 12372 Intergovernmental review of federal programs (July 14, 1982)</p>	None - Project is not in a municipal watershed or near a domestic water source.
Wetlands/Riparian Zones	E.O. 11990, Protection of Wetlands, 5/24/77	None - "The selected alternative [of the FEIS] complies with [E.O. 11990]..."(ROD p. 51, para.7).
Wild and Scenic Rivers	<p>Wild and Scenic Rivers Act of 1968 (as amended)</p> <p>The North Umpqua Wild and Scenic River Plan (July 1992)</p>	None - Project is not within the North Umpqua Scenic River corridor.
Wilderness	Federal Land Policy and Management Act of 1976 Wilderness Act of 1964	None - "There are no lands in the Roseburg District which are eligible as Wilderness Study Areas." (RMP pg. 54).

OTHER RESOURCES CONSIDERED

Resource	Environmental Effect / Concerns
Land Use (Leases, Grazing etc.)	None - Project has no conflicting land uses (Report - 7/15/02). Roads are encumbered under Right-of-Way Agreements # R-912 (Seneca Jones), R-767 (Lone Rock Timber), R-1145 (Reservation Ranch), R-957 (Weyerhaeuser), R-846C (Carol Whipple), and R-763 (Juniper Properties Limited Partnership).
Minerals	None - Project has no mining claims (Specialist's Report 7/15/02).
Recreation	Minimal short-term impacts - "will not create long term impacts on the recreational use of these areas" (Specialist's Report 3/20/03).
Visual	None – “All units fall within Visual Resource Management Class IV, where no specific visual management restrictions apply”. (Specialist Report 3/20/03)
Other (Adjacent Landowners)	None - Five small adjacent landowners are in the vicinity of these two sales. No registered domestic water use (Report – 7/15/03).